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Texture of Light in Environmental Theatre: Elvis Machine

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Texture of Light in Environmental Theatre: Elvis Machine

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Abstract

Texture of Light in Environmental Theatre: Elvis Machine

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This thesis explores the varied ways in which texture from light is created through the use of sculpted materials and objects for use in environmental theatre. Shadow, silhouette and reflection are created through the use of both light and object from light but through objects. The objects, made from varied materials, determine not only the quality of light but also the quality of the textures projected. For the performing arts, lighting designers create light to speak a magical language. This language moves to tell the same story as that of the performers and of all other invested collaborators. However, light would not be seen without objects that reflect it. Performers, scenery, and costumes are objects that can tell and support the story and also serve as surfaces and objects ready to accept and reflect lighting texture. It is the materiality of an object that determines the quality of texture. In this case, materials of the medium are going to be storytellers in costume using crafted objects on a stage located in an open-air parking lot

under the natural sky. Unlike the methods of lighting for the traditional theatre, I am going to experiment with materials and create the texture of light by using non-theatrical instruments for the collaborative performance of *Elvis Machine* created by The Duplicates Theatre Company. These non-theatrical instruments, also known as practical lighting, will serve as the primary sources for light and for texture.

The purpose of creating the texture with practical lighting for this performance is to explore the way in which we use the texture in environmental theatre. It is common practice for theatrical lighting designers to create texture for the stage through the use of pre-manufactured lighting templates. The basic constructs of environmental theatre, in the case of *Elvis Machine* located in an open-air lot, makes it difficult if not nearly impossible to employ the use of theatrical instrumentation as the primary source of light and texture. My solution for the production of *Elvis Machine* is to design and to create all of the necessary lighting fixtures required for the production.

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Chapter 1: History and Background of the Texture of Light

When I consider the process for lighting an environmental performance, I reflect upon my many observations of light in the world. I consider how different kinds of light sources can affect the mood and the atmosphere of everyday life. An example of one observation includes a commonly practiced cultural event. Every February in Taiwan fifteen days after the Chinese New Year there is a Lantern Festival. People make lanterns and release them into the air. The heat from the candles inside the lanterns causes them to rise up to the sky. The lanterns carry the wishes of their makers up to the sky as they ascend. In Taiwan they are called "sky lanterns." As a thousand black inked wishes rise into the air, they create a beautiful scenic environment that directly reflects Taiwanese culture and history.

Figure 1, Sky Lantern in PinXi, Taiwan

The use of lanterns is common in Asia and was employed long before the introduction of electric lights. Today lanterns are not only made of paper but they use other materials such as plastic and glass. As they are very much a part of the Asian culture I began to consider how they might be used effectively for theatrical lighting.

Contemporary lamps also inspire me. Modern designers choose varied materials to create aesthetic works of functional art. The lighting fixtures are not only designed for the purpose of illumination but also to express the strength of life. However, I find that the materials used to speak more to their personal thoughts about the look of the fixture rather than a focus upon the quality of the light and texture emitted from the source. And the shadow imbues the lamp with narrative qualities. In our current age, people easily accept the use of artistic light sources as interesting illumination solutions for interior design. I believe the use of custom designed lighting fixtures would prove a positive source for expression and storytelling in the realm of environmental theatre.

Figure 2, Contemporary lamp 1

Figure 3, Contemporary lamp 2

Additional observations have led me to consider further the depth of language, character, and meaning a lighting source is able to express in a space and place. Walking on the streets of Europe I was struck by the fact that the architectural lighting mounted upon antique buildings added to the historical story of the structure. For example, I observed the light from a single antique lamppost lighting tourists passing by a pile of trash and debris. The image moved far beyond a simple example of an illuminated area. The image suggested a narrative based upon the strong sense of atmosphere created by the combination of space, object and pedestrians. I began to think about the lights and the

surfaces, how I could use the surfaces creating the texture with a single light source in a narrative way.

Figure 4, Streetlight in Rome, Italy

Chapter 2: Environmental Theatre

Before moving forward I should define the term environmental theatre and practical lighting in theatre. Cicely Richard suggests that the term refers to a theatrical performance that takes place in a real world setting rather than in a synthetic, artificial, dedicated performance space like those used for traditional theatre performances. For example, Richard took “A Midsummer’s Night Dream” to the Delacorte Theatre in New York City, which is an outdoor theatre in Central Park. In this production actors related differently with the audience because they intermingled with them. It was as if the performance had left the confines of the stage and the audience too became characters in the play. Other directors such as Richard Schechner have also experimented with moving theatrical performance to non-traditional sites. *'Dionysus in 69'* is the first performance of The Performance Group that was created by Richard Schechner in November 1967. It was the first environmental theater production shown at the Performing Garage in New York City. *'Dionysus in 69'*, is a freewheeling adaptation and distortion of Euripides' 'The Bacchae'. The Performing Garage was filled with platforms and towers and the floor was covered with carpets. There were no seats. Performers and spectators shared the space either sitting on the floor or perched on scaffolds.

Figure 5, *Dionysus in 69* by Richard Schechner, 1969

Environmental Theatre can be outdoors or indoors and the term is often used inter-changeably with site specific. In either case the location of the performance is in a non-traditional theatre space and the venue is chosen for a specific reason connected with the site such as its history or a thematic connection between the site and performance. For example one might choose the World Trade Center Memorial Park to produce a play about the events of 9/11. This should be distinguished from site-generic performance where the only requirement for the non-traditional space is that it can provide a location for a performance.

There are always difficulties when lighting in non-traditional venues. Because these spaces lack the equipment, structure and power sources of traditional theatres, all of these elements must be supplied and set up. In outdoor spaces power sources must be identified or provided by generators. Cables, hanging positions, and instruments must be rented, waterproofed, and installed. Additionally, with external sites one must consider the time of the performance because natural daylight may not be the ideal lighting condition for the needs of the performance. In which case a performance's start time may need to be postponed until nightfall. Considering all of these difficulties it may in fact be easier and more efficient to light this type of performance with everyday non-theatrical lighting fixtures—lighting fixtures that are commonly referred to as practicals. In all probability it may be impossible to provide all illumination in this way but integrating some practicals may benefit the lighting designer working in the environmental theatre.

Chapter 3: Theatrical Lighting and Non-theatrical Lighting

Theatrical lighting is now commonly used in the theatre industry. At the beginning of theatrical activity, lights played an important role. The light used in the earliest productions was natural light. By the beginning of the renaissance, three types of light sources were about all that was available to produce artificial light. Torches might be the oldest source of light. The oil lamp has been used since prehistoric times. The candle developed later.

Gas lighting was first used in the American theatre in the early 19th century. People used gas lighting devices such as oil burners for footlights, sidelights and overhead chandeliers. Although gas had many advantages over oil lamps and candles, it is said that several hundred theatres burned down in Europe and America from the use of gas lighting. Centralized remote control systems were developed usually controlled from backstage. The "gas plate" contained control valves between the main gas supply and each gas lighting "circuit", and allowed the footlights and wing lights to be dimmed.

They were not replaced until incandescent lights had been invented in the late 19th century. Currently, eighty percent of the theatrical lights in use were invented in early 20th century. These lights, called ellipsoidal reflector spotlight also known as an ERS unit, was designed as high efficiency fixtures. A continuous evolution of lighting technology is in play. Many lighting company have their own version of the ERS unit.

Practical lighting could include numerous types of lighting fixtures such as exterior or interior lighting fixtures and bulbs that are not used specifically for the theatre. They are usually placed on the stage, and function as light sources, for a special effect, or as decoration.

Figure 6, Theatrical lighting instrument “Source Four” by ETC

Figure 7, “The Threepenny Opera” lighting practicals by Cheng-Wei Teng

Chapter 4: Texture of light in Elvis Machine

Story summary

Elvis Machine is based on the story of Elvis Presley produced by The Duplicates Theatre Company for the 2012 Fusebox Festival. It is a new collaborative environmental theatre performance that is located at an open-air parking lot used to create a drive-in-movie theatre form of performance. The scenery is designed and built by Rowan Doyle and Trey Gilmore as an interpretation of a junkyard. The characters are anthropomorphized as objects representing the Elvis story by the playwright Tom Horan. The performers are staged around the space and directed by the Courtney Sale. The Duplicate Theatre Company created an adventure journey story structure. The story is the visual telling of Elvis Presley's first girlfriend, Dixie Locke's, journey to find Elvis Presley's rhinestone suit for his funeral. In a traditional drive-in-movie theatre, the audience is seated in their car watching the performance through the windshield. The audience is free to do whatever they want in their cars even possibly giving no attention to the movie played before them.

Concept of creating the texture of light for *Elvis Machine*

I feel contemporary interior lighting fixtures and lighting installations not only provide illumination but also narrate stories through their shape and chosen material. Light is a medium that passes through and reflects off of materials. The resulted light and texture can serve as a storytelling performative source. Unlike traditional theatre, where theatrical lighting instruments serve only to illuminate performers on stage, the lighting practicals in the case of *Elvis Machine* become not only a part of the scenic elements but become active performative objects.

One of the reasons for using non-theatrical lighting is to help solve the power and dimming issues relative to the environmental theatre. Another reason for using non-theatrical lighting units is to self-create fixtures that not only support the look of the scenery but help to accentuate magic story moments. I will use shadow and silhouette to create the texture of light most suited for this production of *Elvis Machine*.

At the start of this process, a question I asked myself was how could I use non-theatrical lighting fixtures to create textures we are used to experiencing in the traditional theatre. In the traditional theatre, lighting designers use lighting templates to create shape and atmosphere for the image presented on stage. Lighting designers use the surfaces that the scenery provides to bounce light and to create shadow. These objects transform the way in which we experience light, shape, and texture. Therefore the material of an object becomes an important consideration in the design and construction of custom practical lighting fixtures.

Figure 8, Lighting templates “The Idiot” by Cheng-Wei Teng

Material Inspiration for *Elvis Machine*

"Cloud Lamp", an art piece designed by London-based Chinese designer Yu Jordy Fu, employs the ancient technique of hand-cut paper. Through this technique of hand-cutting the paper, Jordy creates a work that breaks the paper from a two-dimensional expression to a three-dimensional landscape. The paper is cut freehand when it is flat and then folded and sculpted around a light source to create a three-dimensional space. In this series of lamps, Yu Jordy Fu uses the feature of translucence that the paper provides and then uses light as a medium to illuminate the images of the folded and cut paper theme. In addition, Yu Jordy Fu makes opaque images by layering translucent paper. This layering creates different levels of translucence and depth when lighted. In Jordy's work, paper is the material that creates the shape and it is light that creates the texture through the illumination of the paper. This idea using cut and shaped objects reminded me of the way we use the lighting templates in the theatre. In addition, I am inspired by her use of multi-layer translucence.

Figure 9, 10, "Cloud Lamp" by Yu Jordy Fu

Figure 11, “Cloud Lamp” by Yu Jordy Fu

Another example expressing the idea of texture and light and material is “The Seed Cathedral” located at the Pavilion of United Kingdom during the Shanghai EXPO China 2010. The United Kingdom Pavilion has been designed by Heatherwick Studio led by the internationally acclaimed Thomas Heatherwick. The Seed Cathedral was itself an object formed from 60,000-plus transparent acrylic rods containing seeds. During the daytime, each of these 7.5-meter-long rods act like fiber optic filaments, drawing on daylight to illuminate the interior. At night, light sources embedded in each rod cause the whole structure to glow. As the wind moves passed the building, the fiber optic rods gently move to create a dynamic effect. These rods are particularly responsive to external light conditions so that the unseen movement of clouds above the Seed Cathedral is experienced internally as a fluctuating luminosity.

Regarding the texture of the light, Heatherwick used the feature of its transparency. The rods function as a waveguide transmitting light between the two ends of the fiber. He feels the designing light is equal to designing shadow. To design shadow is to design light. No space exists without shadows.

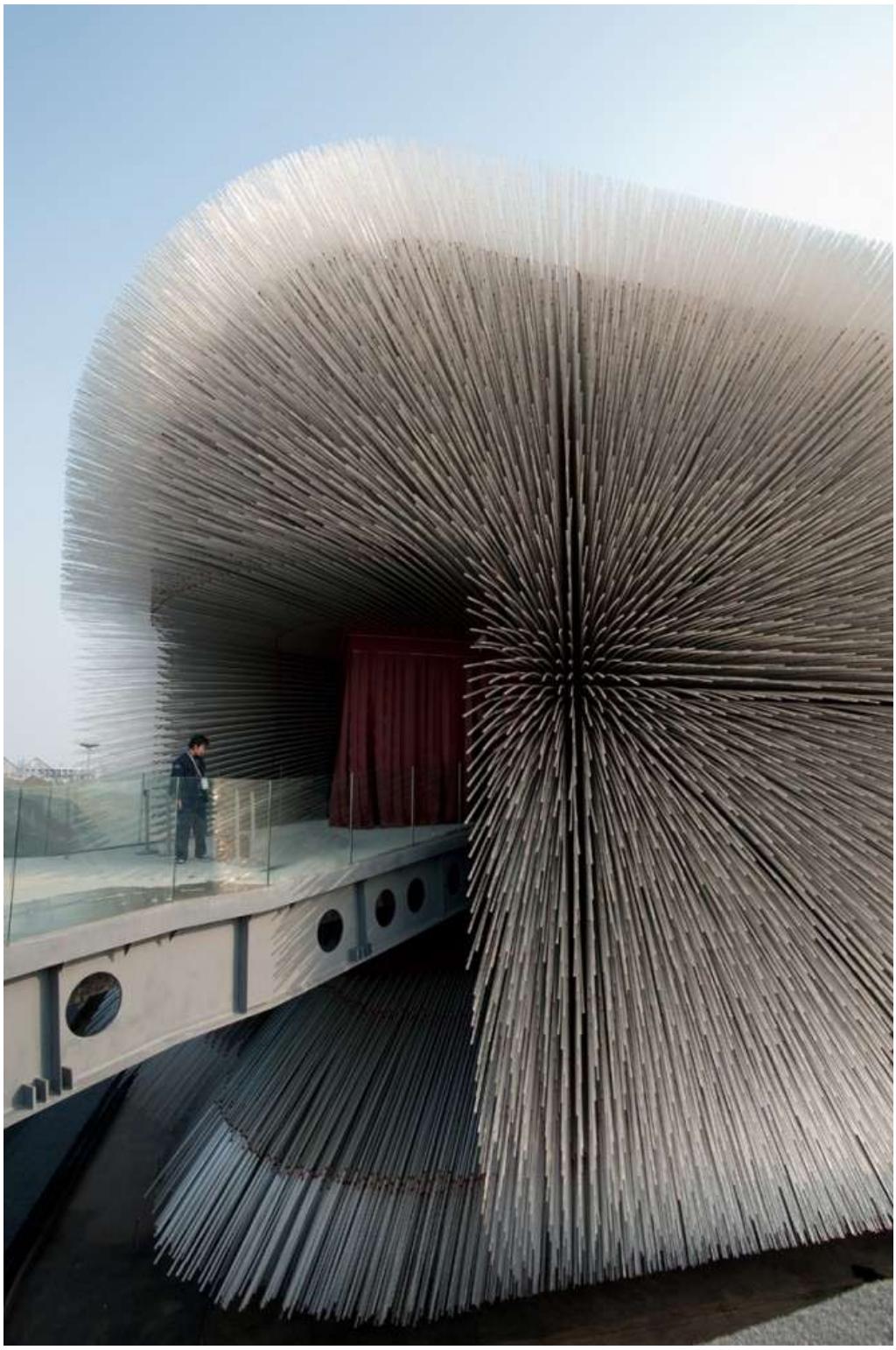

Figure 12, The exterior of the Seed Cathedral by Thomas Heatherwick

Figure 13, The fiber optic rods in the Seed Cathedral by Thomas Heatherwick

Figure 14, The interior of the Seed Cathedral by Thomas Heatherwick

The Process of Making Lighting Fixtures for Elvis Machine

I started by researching the specific materials that related to the *Elvis Machine* story. I, as part of the team, chose to focus upon Elvis Presley's most prized object, his pink Cadillac as it was one of his most historic symbolic icons. I began to analyze the impression the shape of the vehicle set in my mind. I studied the parts that represent the vehicle that make the shape, shadow, and image. I studied the materials that make up the parts of the car and the way in which lights played upon them.

We as a team decided that the location within the story for telling the story was to be a junkyard. Rowan Doyle, the scenic designer, and I went to a junkyard to study the major elements that make up a junkyard's texture. What we observed at the junkyard was that most of the discarded parts of objects were made of metal. We were drawn to wheels and hubcaps as they proved clear symbolic representation of that which we know as automobile. It was then that I, as a lighting and material design investigator began to work with the image of wheel and hubcap as a primary inspiration for the creation of custom lighting objects for *Elvis Machine*.

The stage, a 24 foot wide, 12 foot deep, 6 foot tall platform was erected with a 24 foot wide by 16 foot tall projection screen mounted on the upstage side of the platform. The front of the platform was covered with piles of junk, tires, bumpers, and hubcaps to suggest a junkyard. In order to support the idea of junkyard, I created lighting fixtures that work to be placed around the periphery of the platform, the projection screen and above the head of the audience from junkyard related materials.

Figure 15, Hubcap

The first material I chose to use was metal. Metal has both its opaque and shiny features. The second material I chose to use was reflective mylar mirror film. Mylar mirror film is an object that reflects light in a way that preserves much of its original quality.

I first created three overhead “Hubcap” chandeliers that functioned as overhead down light for the performance space. These chandeliers served multiple functions. The three functions as follows; 1. As a down light source. 2. As a mirror ball. 3. As a special lantern with transparent Elvis Presley silhouette face cut into the body of the lighted fixture.

In order to make this hubcap chandelier withstand the out of door elements, I used metallic covered lightweight half-inch thick rigid foam plastic thermal insulation board. Other materials included paperboard and reflective mylar mirror film. The reflective mylar mirror film served in a magical way as the material functions like a one-

way mirror. The reflective mylar mirror film is dark when light is reflected on the surfaces of the film, but becomes transparent when the film is illuminated from behind. I cut out a silhouette of Elvis' face from the cardboard and then attached the reflective mylar mirror film to the cardboard so that the silhouetted face could be seen when illuminated from behind. In addition, I attached many little mirrors to the chandelier's exterior to create the look of the mirror ball.

Figure 16, The thermal insulation foam board

Figure 17, Mylar mirror film

Figure 18, Cutout image of Elvis Presley on the cardboard

Figure 19, The feature of mylar mirror film without light behind

Figure 20, The feature of mylar mirror film with light behind

Figure 21, Mylar mirror film attach to the cutout cardboard

Figure 22, Overhead wheel lighting chandelier

Figure 23, Overhead wheel chandeliers on site

Figure 24, Overhead wheel chandeliers on site

Figure 25, Overhead wheel chandelier lights around

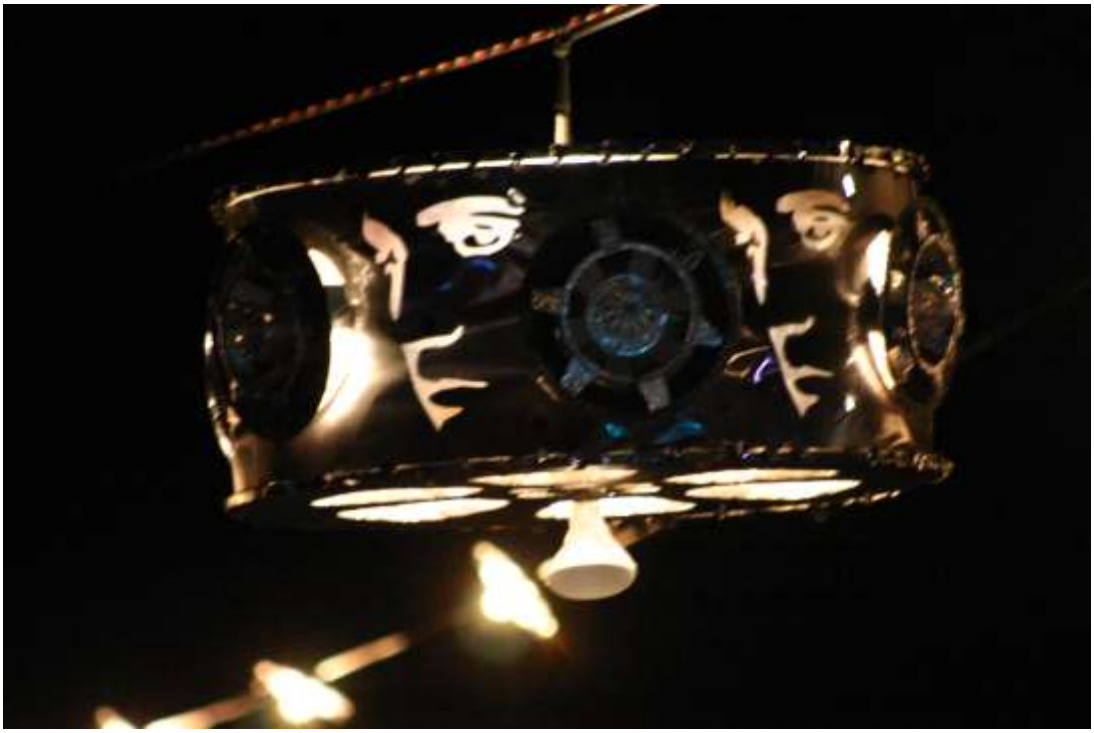

Figure 26, “silhouetted face”, overhead wheel chandelier lights inside

Figure 27, Overhead house light at night

The second style of lighting fixture that I created for the production *Elvis Machine* was the hubcap light. I used the hubcap lights both as house lights and stage fixtures. The house lights were located to the overhead of the audience. The stage fixtures were placed around the periphery of the projection screen and on the face of the show deck.

These lighting fixtures were constructed from two metallic foil pans, one set inside the other. The foil pans were sized at 9 inches and 5 inches. The foil pans served as light reflectors. In order to accentuate light and shadow, I used Jordy's cutting technique to create a multi-dimensional lighting sculpture. I affixed a clear lamp to the

center of the lighting sculpture. The cut out technique proved to create an abstract image of a hubcap.

Figure 28, Foil pan

Figure 29, Overhead house light in daylight

Figure 30, Overhead house light at night

Figure 31, Hubcap fixture in daylight

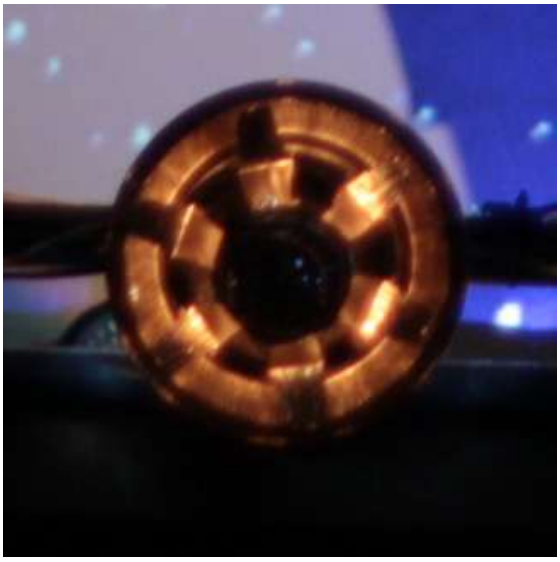

Figure 32, Hubcap fixture at night

Figure 33, Hubcap lights affixed to the stage and the projection screen.

I chose also to experiment with clear water bottles. The curvilinear body shape of the bottle extends the light wave and serves as a great way in which to feature refracted light. I hid incandescent light bulbs inside tires and galvanized steel garbage cans to create a magic junkyard.

Figure 34, Plastic bottles

Figure 35, Plastic bottles refracting light

Figure 36, Construct of magical junkyard in daylight

Figure 37, Construct of magical junkyard at night

Problem Solving; The Power Issue for Environmental Theatre

In order to solve the power and dimming issues relative to environmental theatre, I had to make sure that my design would work successfully within the given power constraints. The parking lot was equipped with 400 total Amps of electricity. I used 80 of the total Amps for my lighting purposes. I placed 5, 4 circuit dimmer packs in and around the stage space. The dimmer packs I used were rated at 120 volts and had 4 dimming channels at 10 Amps each, giving a total capacity of 20 Amps and 2400 watts. The commonly used Edison plug easily powered the dimmers.

Figure 38, 4 channels dimmer packs

The light plot did employ several theatrical lighting instruments. I chose to use 4 High End System Trackspots. I mounted them to trusses located 20 feet stage left and 20 feet stage right of the show deck. The lights were hung at a high of 10 feet. They were placed in these locations to create a front light diagonal and side light angles. The trusses were also lit with the rope and supported the overhead chandelier house light wiring system.

Figure 39, High End System Trackspot

Figure 40, Trusses

The Look of the Production: *Elvis Machine*

The overall design for *Elvis Machine* was not an effort to create an actual junkyard or an actual drive in movie theatre but rather to use the already inherent characteristics of the open-air parking lot environment as a performative transition to suggest a drive in movie theatre, a junkyard and transformational spaces located in and around the whole of the space. The purpose of the lighting practicals that I designed and created was to bridge the reality of the actual open–air parking lot environment with that of the designed scenic environment created for the telling of the Elvis Machine story. The following descriptions and photos are meant to illustrate several of the transformational moments for the visual telling of the *Elvis Machine*.

Prior to the start of the performance, we turned on the parking lot mercury-vapor lights to illuminate the entrance and physical map of the space. A snack stand provided candies and popcorn for the audience members.

Figure 41, Elvis Machine snack stand

The song “C’mon Everybody” signaled the start of the first step toward the transformation of open-air parking lot to that of out of door live performance space. This transformation began with the turning off of a majority of the parking lot lights and increasing the intensity of the already glowing overhead hubcap house lights

Figure 42, Parking with lot mercury-vapor lights and glowing overhead house lights

Figure 43, Mercury-vapor lights off, increased intensity of overhead house light system.

The song “C’mon Everybody” also served as our primary character, Dixie’s, preshow fantasy dance. The stage space represented a fancy sparkling diner. This diner is Dixie’s waitressing workplace. Dixie and many of the ensemble characters danced in this fantasy sequence. The lighting for this fantasy cabaret employed the sparkling lamps of the hubcap fixtures located on the perimeter of the stage as well as the mirrored overhead wheel chandeliers functioning as one might imagine mirror balls would.

Figure 44, Dixie’s diner fantasy cabaret dance

Projections were employed as a large part of the production's visual language. In order to keep light off of the projection screen, I made use of a followspot to light the story's featured actors, Dixie and Rose, Elvis's prized Cadillac, while on stage.

Figure 45, Dixie in spotlight with projected image on upstage screen

To create a mysterious moment for the stranger's entrance marking the beginning of Dixie's adventure, I built a composition that featured a glowing junkyard, the hubcap fixtures located around the projection screen and the perimeter of the stage. This also proved to be the first time that I revealed the silhouetted Elvis face cut into the magic mylar chandeliers.

Figure 46, The Stranger's entrance

To transform a tower located in the parking lot in to a representation of Rose, Elvis's prized Cadillac, I placed two foil pan fixtures on the hand railing located in front of the tower to represent the idea of headlight. I placed three flood incandescent lighting fixtures inside of the tower for actor illumination.

Figure 47, Rose and Dixie in the transformed tower space

Figure 48, Rose and the Elvis Machine band

This scene was called “Ode to the car”, a section of the story structure where Rose, the car would share direct address with the audience. Rose, the car played host and sang the one of the production’s songs titled “Rubbernecking. The design idea was to create a place that would project the idea of night club.

Figure 49, Rose singing Rubbernecking

The climactic moment of the story structure involved a physical battle between Dixie and Rose the car. The battle was staged in the back of a moving pick up truck traveling through and around the whole of the performance space. This moment was visually supported by the flaming fire projection and the erection of the Elvis Machine sculpture. In order to support the energy of the moment, the intensity of the lighting fixtures was near to full and was set to a chase effect, a quick on and off bumping of light intensity, to accentuate the highly active event. The followspot was used to keep focus on both Dixie and Rose in the back of the truck.

Figure 50, Visual support for the climatic battle

Figure 51, Dixie and Rose battle in the back of a moving pick up truck.

Chapter 5: Conclusion

Environmental theatre is a type of theatre where one must expect to face a number of unknown elements including the possible variations of live interactions that might occur between performers and audience during the production. Another unknown is the way in which the architectural environment will be read in relationship to the created performance space. The greatest unknown is that of the unexpected ways in which we, the makers of the experience and the human beings present for the performance interact to the spectacle of visual art.

Elvis Machine is an experimental, environmental, drive-in live performance created by The Duplicates Theatre Company. A primary objective of the company is to investigate the idea of the performative experience in the environments we live in and the ways in which these environments affect the way we create and the way we tell stories.

The process of creating the *Elvis Machine* required the team to work closely in the development of every element for the performance. We, as a team, create the story visually, aurally, and textually with the skills of our individual disciplines in order to create a diversified performance.

As the lighting director and designer of the lighting fixtures for this production, it was my responsibility to see light beyond its typical function of illumination. I was to create light and textures that spoke to the story and to the space and to the environment and also to serve as a character voice. The scenic designer and I were creating a

spectacular work of art of which we could not have envisioned prior to its actual making. The lighting practicals that I designed and created of foil pans and mylar mirror film proved that many materials that we use in our daily life could become useful for creating lighting texture and abstract lighted characters for environmental performances. The result challenges the way we see, feel and experience light for performance.